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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,351	12/09/2003	Koichiro Yomogida	5616-0080	3554

7590 05/11/2004

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EXAMINER

GIMIE, MAHMOUD

ART UNIT PAPER NUMBER

3747

DATE MAILED: 05/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/731,351	Applicant(s) YOMOGIDA ET AL.	
	Examiner Mahmoud Gimie	Art Unit 3747	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>050/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Rosenau (5,927,322).

Rosenau discloses common rail fuel injection control device which comprises a supply pump (5) for pumping a fuel into a common rail (7) and a metering valve (1) for adjusting the fuel pumping quantity in the supply pump (5) and in which the metering valve is controlled to a base target opening degree determined based on an engine operation state by a duty drive signal, wherein said duty drive signal is caused to oscillate periodically, see col. 2, ll. 59+.

With regard to claim 2, the oscillation range of said duty drive signal is caused to change according to the engine operation state, see above.

3. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Igashira et al (6,311,674).

Igashira discloses common rail fuel injection control device which comprises a supply pump (20) for pumping a fuel into a common rail (4) and a metering valve (40) for adjusting the fuel pumping quantity in the supply pump (20) and in which the metering valve is controlled to a base target opening degree determined based on an engine

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operation state by a duty drive signal, wherein said duty drive signal is caused to oscillate periodically, see all figures and accompanying details, particularly figures 1,3,4,5(a)-5(c) and 23-25.

With regard to claim 2, the oscillation range of said duty drive signal is caused to change according to the engine operation state, see above.

With regard to claim 3, a common rail fuel injection control device comprising: a common rail (4) for accumulating a high-pressure fuel; a supply pump (20) for pumping the fuel into the common rail; a metering valve (1) for adjusting the fuel pumping quantity in the supply Pump; means for detecting the engine operation state; means for detecting an actual common rail pressure, means for computing a target common rail pressure based on the engine operation state (see figure 23); and means (6) for controlling the opening degree of the metering valve by a duty drive signal so that the pressure difference between said target common rail pressure and said actual common rail pressure becomes zero, the control device further comprising: means for determining the value of a base duty equivalent to a base target opening degree of said metering valve based on said pressure difference; means for generating the value of an oscillation duty which oscillates with a constant period and a constant amplitude; and means for determining the value of a final duty which has to be applied to said metering valve by adding the value of said oscillation duty to the value of said base duty.

With regard to claims 4-10, see above.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited references show common rail fuel injection systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mahmoud Gimie whose telephone number is 703-305-1037. The examiner can normally be reached on 7 a.m. -3:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Yuen can be reached on 703-308-1946. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M Gimie



**MAHMOUD GIMIE
PRIMARY PATENT EXAMINER
ART UNIT 3747**